

Work Order ID 138185

Tuesday, October 27, 2015 11:05:23 AM

138185

DAS
10
9-89

~~PRELIMINARY ISSUE~~

Page 1

Item ID: D3512-3

Revision ID:

Item Name: Spacer

Start Date: 10/26/2015 Start Qty: 6.00

Required Date: 10/26/2015 Req'd Qty: 6.00

Reference:

Accept

N900040100

Setup Start

NS1

Stop

NS2

Cust Item ID:

Customer:

Approvals:

Process Plan: MLS

Date: OCT 28 2015

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Run Start

NR1

Stop

NR2

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr	DAS							
D3512	01	10 9-89 15.10.28							
100	FLOW WATER JET	0.00							
100									
Waterjet	Memo	0.00							
FLOW CNC Waterjet	1-Cut as per Dwg D3512 Dwg Rev: <u>D</u> Prog Rev: <u>D</u> 2-Deburr if necessary								
110	QC2- Inspect parts off machine FAI/FAIB	0.00							
110									
QC	Memo	0.00							
Quality Control									
120	QC8- Inspect parts - second check	0.00							
120									
QC	Memo	0.00							
Quality Control									

(12)

10/15/11/05

(12)

10/15/11/05

(12)

DAS
38
9-89

NOV 05 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube ☐</td> <td style="width:15%;">Cross tube ☐</td> <td style="width:15%;">Water Jet ☐</td> <td style="width:15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																															
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Work Order ID 138185

Tuesday, October 27, 2015 11:05:23 AM

138185**PRELIMINARY ISSUE**

Page 2

Item ID: D3512-3

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Spacer

Start Date: 10/26/2015 Start Qty: 6.00

6

Cust Item ID:

Required Date: 10/26/2015 Req'd Qty: 6.00

6

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run

Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

Form as per dwg
NC BRAKE

0.01

130

Brake NC

Memo

0.00

DAS
30
9-89

12

NOV 09 2015

Brake NC

140

QC5- Inspect part completeness to step on W/O

0.00

140

QC

Memo

0.00

DAS
38
9-89

(12)

NOV 09 2015

Quality Control

150

Identify as per dwg & Stock Location: W/1001

0.00

150

Packaging

Memo

0.00

Packaging

LOCATION: WA001

12 EL 15-11-72

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment ☐	☐	No Re-verification ☐	☐	Pressure/Forced ☐	☐	Temperature/Cure ☐	☐
Design ☐	☐	Operator ☐	☐	Bending ☐	☐	Set-up ☐	☐
Doc/Data ☐	☐	Offset/Setup ☐	☐	Centre Not Concentric ☐	☐	BOM/Route ☐	☐
Equip/Tooling ☐	☐	Supplier ☐	☐	Cracks ☐	☐	Broken/Damage/Defect ☐	☐
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Internal Transport ☐	☐	Poor Information ☐	☐	Crushing ☐	☐	Countersink ☐	☐
Tribal Knowledge ☐	☐	Rushing ☐	☐	Heat Treat ☐	☐	Cut Too Short ☐	☐
LOA ☐	☐	Product Improvement ☐	☐	Wave/Twist in Tube ☐	☐	Instructions Incomplete/Unclear ☐	☐
Substation ☐	☐	Process Improvement ☐	☐	Marks/Chatter ☐	☐	Drill Holes ☐	☐
Past Expiry Date ☐	☐	Manufacturing Process ☐	☐	OTHER :			
Misidentified ☐	☐	Past Due ☐	☐				

Work Order ID 138185

Tuesday, October 27, 2015 11:05:23 AM

138185~~PRELIMINARY ISSUE~~

Page 3

Item ID: D3512-3

Accept

N900040100

Setup Start

NS1

Revision ID:

Item Name: Spacer

Stop

NS2

Start Date: 10/26/2015 Start Qty: 6.00

6

Cust Item ID:

Required Date: 10/26/2015 Req'd Qty: 6.00

6

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

160

QC21- Final Inspection - Work Order Release

0.00

160

QC

Memo

0.01

Quality Control

MCS

NOV 12 2015

MCS

NOV 12 2015

POSITIVE RECALL

EFFECTIVE OCT 29 2015 AUTH MCS

RELEASED DATE

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
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Root Cause				FAULT CATEGORY							
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Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
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Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____							
Misidentified	☐	Past Due	☐								

Picklist Print

Tuesday, October 27, 2015 11:05:22 AM

~~PRELIMINARY ISSUE~~

Page 1

Work Order ID: 138185

138185

Parent Item: D3512-3

D3512-3

Parent Item Name: Spacer

Start Date: 10/26/2015

Required Date: 10/26/2015

Start Qty: 6.00

Required Qty: 6.00

Comments: IPP REV:A 13.07.19 NEW ISSUE DD VERF:JLM IPP
REV:B 13.12.11 ECN13-619/ REV.D DWG DD VERF:JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304S18GA		Purchased	No			100	sf	295.2000	0.0943	0.595579			
M304S18GA									**	<u>1.4</u>		10/15/11/05	
304/316 .050 Sheet													

Location

Loc Qty

Loc Code

MAT020

284.7

M128435

22.9

M132797

5

M133328

256.8

MAT20

10.5

M131700

10.5

DQA: _____ Date: _____



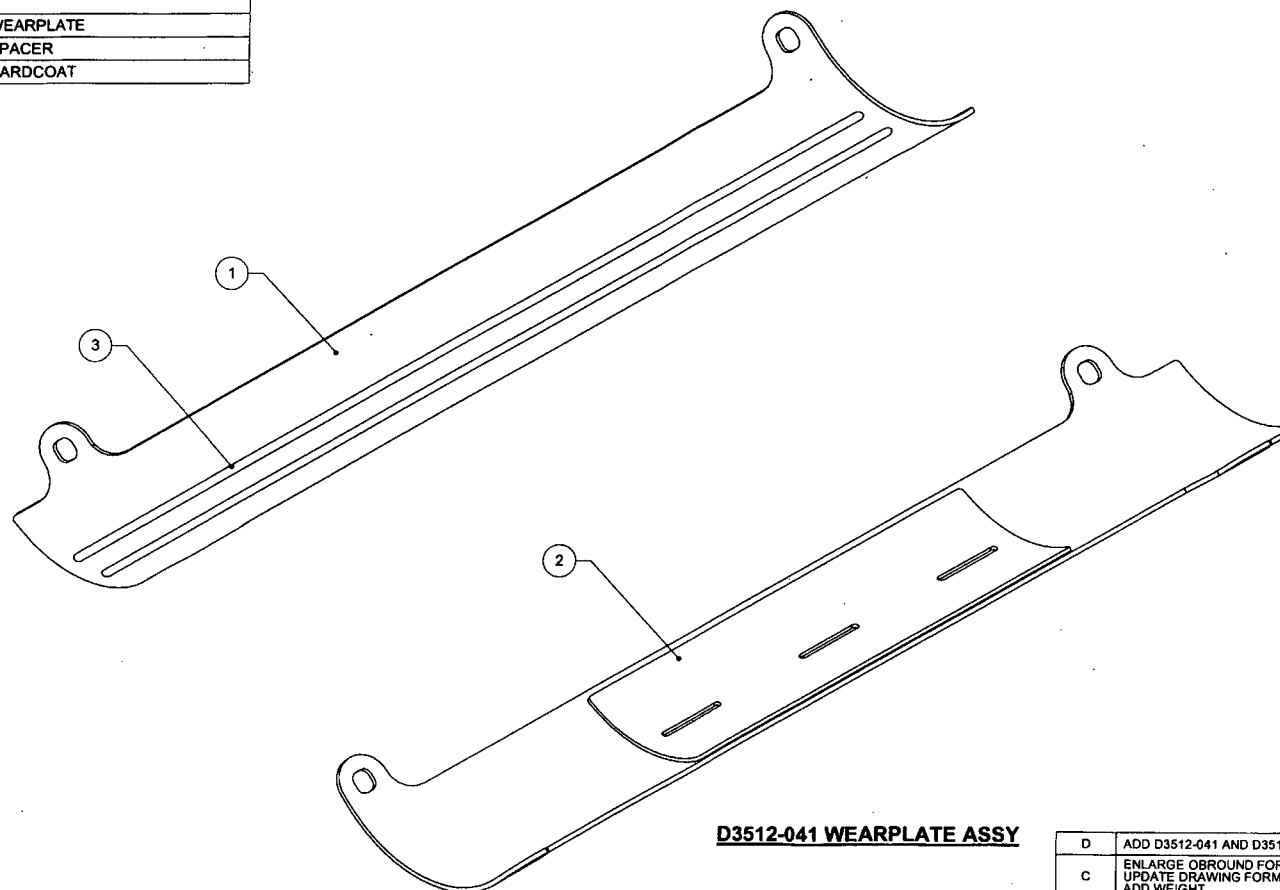
WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
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LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

ITEM	QTY -041	P/N	DESCRIPTION
	X	D3512-041	WEARPLATE ASSY
1	1	D3512-1	WEARPLATE
2	1	D3512-3	SPACER
3	A/R	2059B	HARDCOAT



D3512-041 WEARPLATE ASSY

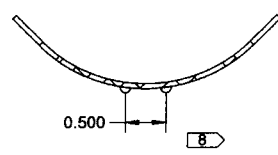
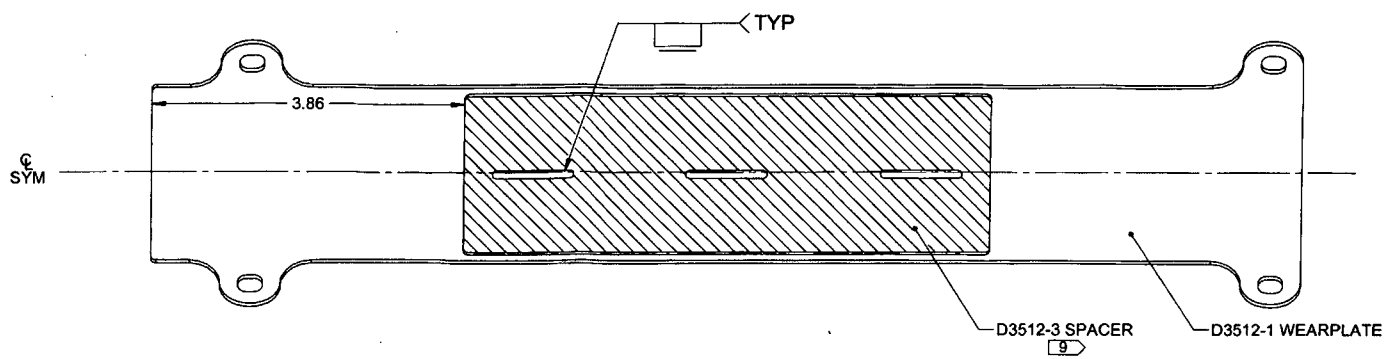
SHOP COPY
 RETURN TO
 WORKING
 UNLESS SHOWN OTHERWISE
 ATTENTION
 WORK ORDER

138188 MJS
 15-10-29

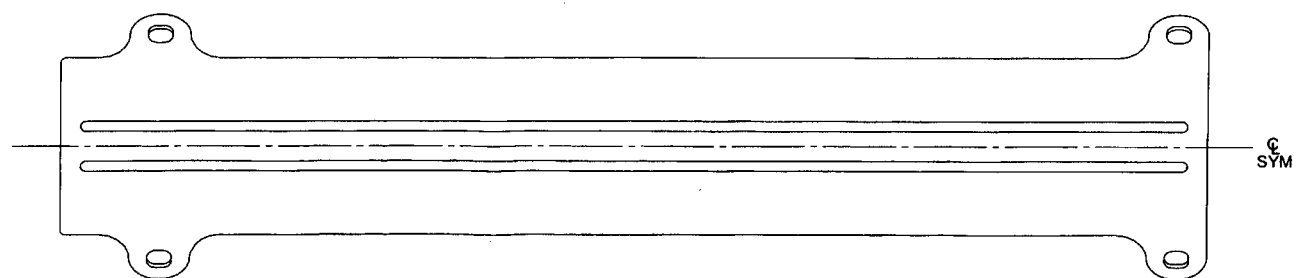
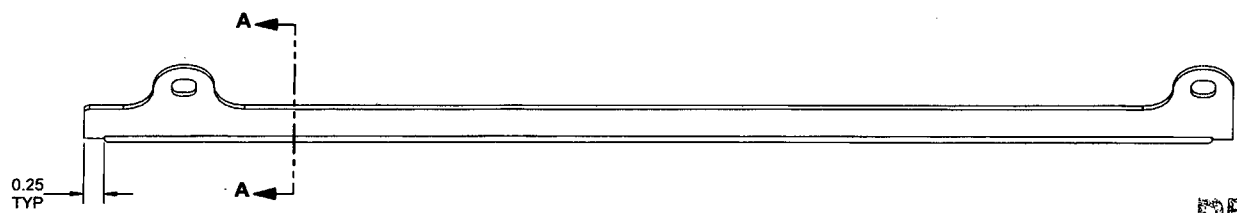
RELEASED
 2013-12-10
 wp

D	ADD D3512-041 AND D3512-3	DW	13.08.28		
C	ENLARGE OUBROUND FOR EASIER ASSEMBLY UPDATE DRAWING FORMAT ADD WEIGHT	PH	07.10.05		
B	CHANGE MATERIAL TO STAINLESS STEEL	PH	06.10.27		
A	NEW ISSUE	PH	06.04.21		
REV.	DESCRIPTION	BY	DATE		
DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA			
DRAWN	DW				
CHECKED				DRAWING NO.	REV. D
MFG. APPR.				D3512	SHEET 1 OF 4
APPROVED				TITLE	SCALE
DE APPR.		WEARPLATE ASSY	NTS		
DATE	13.08.28	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS LOANED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			

8 7 6 5 4 3 2 1



SECTION A-A
SCALE 1:1.5



D3512-041 WEARPLATE ASSY

RELEASED
2013-12-10
WP

- NOTES:**
- 1) MATERIAL: N/A
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: IDENTIFY WITH DART P/N "D3512-041" USING FINE POINT PERMANENT INK MARKER
 - 7) WEIGHT: 0.94 lbs
 - 8) WELDING: PER QSI 004. 2059B HARDCOAT WELD 0.063 TO 0.125 THK
 - 9) COAT HATCHED (CONCAVE) SURFACE WITH PLUS ONE ROCKGUARD 4714, 0.020-0.040 THK

DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DW		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. D
MFG. APPR.	<i>[Signature]</i>	D3512	SHEET 2 OF 4
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	WEARPLATE ASSY	NTS
DATE	13.08.28	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8 7 6 5 4 3 2 1

8 7 6 5 4 3 2 1

D

C

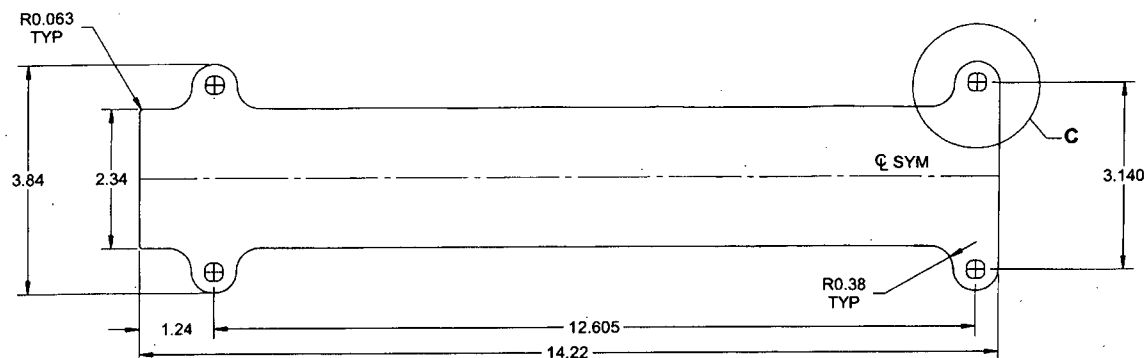
B

D

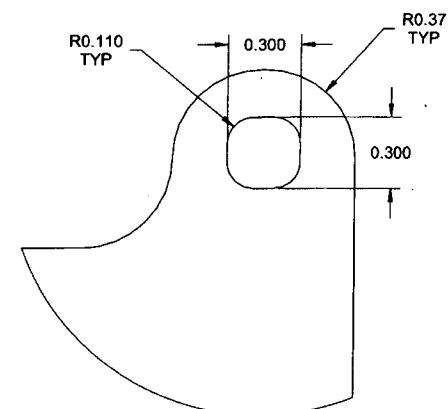
C

B

A



D3512-1F



DETAIL C
SCALE 2X

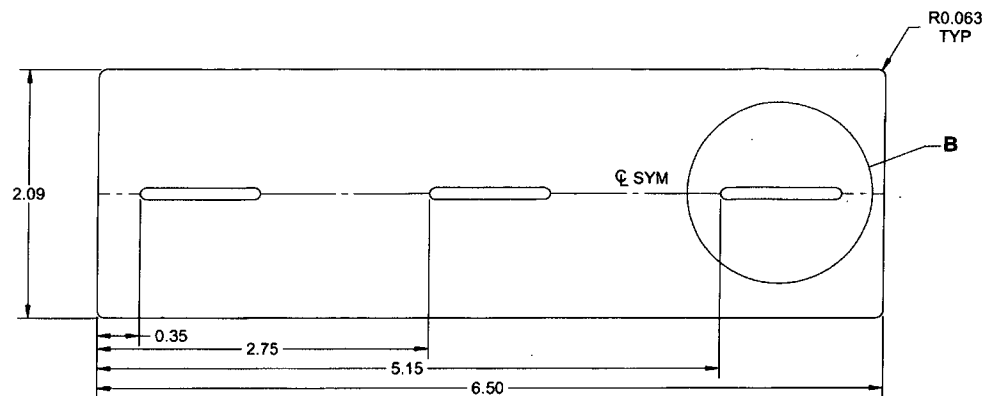
RELEASED
2013-12-10
WP

NOTES:

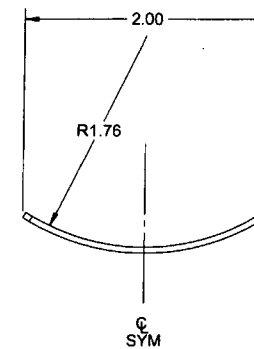
- 1) MATERIAL: AISI 304/316 STAINLESS STEEL PER MIL-S-5059 OR AMS 5513 OR 5524 OR ASTM A240
18 GAUGE 0.063 THICK (REF DART SPEC. MS304S16GA)
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.63 lbs

DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DW		
CHECKED		DRAWING NO.	REV. D
MFG. APPR.		D3512	SHEET 3 OF 4
APPROVED		TITLE	SCALE
DE APPR.		WEARPLATE ASSY	NTS
DATE	13.08.28	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

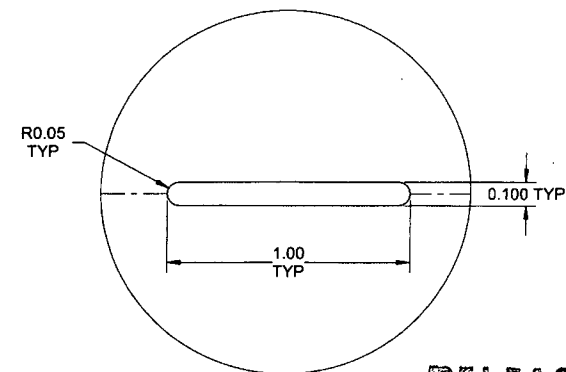
8 7 6 5 4 3 2 1



D3512-3F FLAT PATTERN



**D3512-3 SPACER
MAKE FROM D3512-3F**



**DETAIL B
SCALE 2X**

RELEASED
2013-12-10
W

- NOTES:**
- 1) MATERIAL: AISI 304/316 STAINLESS STEEL PER MIL-S-5059 OR AMS 5513 OR 5524 OR ASTM A240 18 GAUGE 0.050 THICK (REF DART SPEC. MS304S18GA)
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: 0.19 lbs

DESIGN	DW	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DW		
CHECKED		DRAWING NO.	REV. D
MFG. APPR.		D3512	SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		WEARPLATE ASSY	NTS
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